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APR 24 2009

Ref: 8EPR-N

Carol DeAngelis, Area Director
Bureau of Reclamation, Western Colorado Area Office
2764 Compass Drive, Suite 106
Grand Junction, CO 81506

RE: Aspinall Unit Operations, Colorado River Storage Project, Gunnison River, Gunnison and Montrose Counties, Colorado, Draft Environmental Impact Statement, CEQ # 20090044

Dear Ms. DeAngelis:

The Region 8 Office of the U.S. Environmental Protection Agency (EPA) has reviewed the Bureau of Reclamation's (Reclamation) Draft Environmental Impact Statement (Draft EIS) for the Aspinall Unit Operations Colorado River Storage Project on the Gunnison River, in Colorado. Our review and comments are provided for your consideration pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4332(2)(c) and Section 309 of the Clean Air Act, 42 U.S.C. § 7609.

This Draft EIS addresses a change in operational plans to improve conditions for downstream habitat of endangered fish. The Aspinall Unit consists of three reservoirs: Blue Mesa, Morrow Point, and Crystal operated by Reclamation under the Colorado River Storage Project Act of 1956. The proposed action is to alter the operation of these three reservoirs to avoid destroying or adversely modifying designated critical habitat for four endangered fish: the Colorado pikeminnow, the razorback sucker, the bonytail, and the humpback chub. These four species are found in the upper Colorado River Basin and nowhere else. Reclamation intends to modify operations to achieve certain flow conditions recommended for fish recovery under the Colorado River Endangered Fish Recovery Program developed pursuant to the Endangered Species Act (ESA). The DEIS analyzes four alternatives and the No Action Alternative. The operational change alternatives include Alternative A -- Risk of Spill Alternative, Alternative B -- Fish Peak with Duration Alternative, Alternative C -- Fish Peak with Increased Duration Alternative, and Alternative D -- Fish Peak with Revised Target Alternative. Alternative B is Reclamation's preferred alternative.

EPA supports the need for the proposed action and notes that fourteen native fish species inhabit the upper Colorado River, four of which are endangered. There are two types of adverse impacts that contributed to these circumstances including the adverse ecological effects from

operation of these water storage facilities and the introduction of non-native fish. Regardless of which operational alternative Reclamation implements, subsequent changes are likely to be needed, based on an adaptive management approach as described in the Draft EIS that may alter or modify operations needed to provide fish recovery through habitat improvement. According to the Draft EIS, Reclamation understands this need to later adapt to these uncertainties following its planned flow modifications. The Final EIS should contain monitoring protocols and adaptive management success criteria obligating operational changes if needed for ESA compliance. The adaptive management plan presented in the Final EIS should give specific attention to these vital, yet conflicting factors:

1) Peak flows – what frequency and duration of half bank full (8,070 cfs), bank full (median value of 14,350 cfs) and backwater habitat inundation (greater than 10,000 cfs) flows are needed to effectively maintain the river substrate and habitat heterogeneity, and to inundate floodplains and restore floodplain connectivity for spawning and juvenile habitat?

2) Base Flows – what are the trade-offs that result by providing critical peak spring-time flows which could lower reservoir storage needed to provide base flow conditions in the summer season?

3) Climate change – how will flows and operations be managed if there is increased jeopardy to endangered fish species following changes in hydrology resulting from climate change?

4) Future flow depletions above the Aspinall Unit – how will future water rights developed and depleted from the upper Gunnison River Basin affect the intended ESA goals?

Prior analysis provided by the U.S. Fish and Wildlife Service and others clearly established that flows equal to or greater than half bank full are vital to prevent fine sediment from accumulating in the bed, and that flows at bank full discharge are needed to mobilize the bed and maintain the channel's geometry.[1]

While the Draft EIS discusses some of the management challenges that must be addressed in order to achieve the peak flow conditions necessary for Reclamation to meet its ESA obligations, the Draft EIS fails to analyze the implications of the - recently-adjudicated federal reserved water right for the Black Canyon of the Gunnison National Park (National Park).[2] It is EPA's understanding that the January 8, 2009 water rights decree places the National Park's water right senior to the Aspinall Unit, and therefore, Reclamation must deliver, or be in a

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[1] Pitlick, J., et al., *Geomorphology and hydrology of the Colorado and Gunnison Rivers and implications for habitats used by endangered fishes*. Final Report to the Recovery Program for Endangered Fishes of the Upper Colorado River, 1999.

[2] Decree, Case No. 01CW05, filed January 8, 2009, Colorado District Court Water Division 4, Water Judge J. Steven Patrick presiding. The calculations for peak flow obligations measured in the Gunnison River below the Gunnison Tunnel are presented in the graph as Attachment F to the decree.

position to deliver, these senior water rights (including the peak flows at specified inflow conditions) as required by the decree. This water right obligation should become part of the current operations and thus would be a common element of all the alternatives, including the no-action alternative. The alternatives in the Final EIS should be analyzed and modeled with this water right included.

In 2001, the United States filed its claims for federal reserved rights in the Gunnison River for the National Park for three flow provisions:

1) base flows of 300 cfs for the year,
2) a peak flow to be provided during the spring season, and
3) a shoulder flow, or intermediate flow, for later in the summer season.

Of particular relevance to EPA's concerns that peak flows be given additional consideration for the purposes of fish recovery is that this federal reserved right establishes peak flows to be provided within the National Park downstream of the Aspinall Unit. This final decree establishes peak flows of 24-hour duration defined by projected annual inflow conditions for Blue Mesa, the uppermost and largest of the three reservoirs. Most importantly, the decree provides that when forecasted annual inflow in to Blue Mesa reservoir is greater than 1,050,000 acre-feet, then a peak flow for such a year should be approximately 11,000 cfs, at a minimum, to meet the provisions of the National Park's adjudicated federal reserved water rights. Thus the National Park's reserved federal water rights settlement appears to obligate Reclamation to attain certain peak flow conditions, but this was not applied as an operational constraint to Reclamation's Aspinall Unit Draft EIS process. Without this information, and the means by which Reclamation will specifically comply with these adjudicated water rights obligations, the analysis provided in the DEIS is deficient.

It appears that the action alternatives may provide flows that could provide greater environmental benefit than the decree requires for certain conditions. The decree does specify a methodology for calculating the annual peak flows for various flow classes based on inflow equations that differ from the peak flow volumes defined for each of the six year categories (Dry-Wet) presented in the Draft EIS. Reclamation should incorporate the decree criteria into the Final EIS and provide comparisons of the frequency, duration and magnitude of baseflows, shoulder (or ramping) flows and peak flows under the decree and all alternatives. The Final EIS should characterize and compare these two contrasting methodologies and assess how the results influence the environmental functions and economic costs.

It is EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project pursuant to Section 309 of the Clean Air Act. In accordance with our policies and procedures for reviews under Section 309, EPA is rating this Draft EIS as "Environmental Concerns – Insufficient Information" (EC-2), for reasons provided in this letter and the enclosed detailed comments. The "EC" rating is based on EPA identifying environmental impacts that should be avoided in order to fully protect the environment. Specifically, Reclamation should disclose how it will provide peak flows needed to avoid continuing environmental harm. The "2" rating means that the Draft EIS does not contain

sufficient information to fully assess environmental impacts that may be avoided in order to fully protect the environment, specifically since the Draft EIS does not consider the means of compliance with the 2009 federal reserved water right decree.

We appreciate the opportunity to review this Draft EIS and are available to discuss our comments. If you have any questions, please contact me at (303) 312-6004 or Wes Wilson, the lead reviewer for this project, at (303) 312-6562 or at wilson.wes@epa.gov.

Sincerely,

Larry Svoboda
Director, NEPA Program

Enclosures: Summary of EPA Rating Definitions
Detailed Comments

cc: Connie Rudd, National Park Service, Gunnison, Colorado
Patty Gellett, Fish and Wildlife Service, Grand Junction, Colorado
Tom Ryan, Western Area Power Authority, Salt Lake City, Utah
Mike King, Colorado Department of Natural Resources, Denver, Colorado

Detailed Comments by the Environmental Protection Agency
on the
Draft Environmental Impact Statement
Aspinall Unit Operations, Gunnison River, Colorado

Project Purpose

The purpose of the proposed action is to avoid jeopardy of the listed species and adverse modification to designated critical habitat. (DEIS at page 1-2.) However, Reclamation has the responsibility under the Endangered Species Act not only to avoid jeopardy of these species or adverse modification to their habitat, but also has an obligation to assist with the recovery of listed species. The Aspinall Unit change in operations is being done under the procedures identified under the Upper Colorado River Endangered Fish Recovery Program which provides that federal facilities will operate their facilities to improve habitat, rather than merely avoid jeopardy conditions. Note that on page 1-3 of the DEIS it states that "The flow recommendations for the Gunnison River, in concert with program actions, are intended to avoid jeopardy *and assist in recovery*." (emphasis added.) Reclamation should consider whether the project purpose should be amended to be consistent with the broader policy goals of the Recovery Program and the Endangered Species Act.

Alternative C provides more habitat improvement than Alternative B

The DEIS states that Alternative B -- Fish Peak with Duration, is the preferred alternative *and environmentally preferred alternative* because it avoids jeopardy while meeting Aspinall Unit authorized purposes. However, the evaluation criteria presented on page 2-25 appear to be inconsistent with the conclusion that Alternative B would be environmentally preferred compared to Alternative C. (See, for example, the number of Critical Habitat Annual Days provided in Table 2.7 1, page 2-25). This table shows that Alternative C provides a higher number of days for each flow category within the critical habitat than Alternative B. On this vital performance measure, Alternative C -- Fish Peak with Increased Duration, provides greater habitat values in each flow category. In addition, Alternative C provides for longer peak flow duration and thus would appear to better meet the objective to assist in recovery rather than avoidance of jeopardy if that were the amended project purpose. For example, the Draft EIS identifies backwater habitat inundation as an important habitat component for native fish, especially the razorback sucker (Draft EIS at pages 3.89-90). The duration of backwater habitat inundation, provided by flows greater than 10,000 cfs, is greater under Alternative C than all other alternatives. Thus, Alternative C provides for longer peak flow duration and thus would appear to better meet the objective to assist in recovery in addition to avoidance of jeopardy, if that were the amended project purpose. (See above comment on amending or expanding upon the project purpose.)

Addressing the impacts of climate change

According to the Draft EIS, the variability of future conditions is solely based on the period of record and that future climatic conditions could be either warmer, wetter, cooler, or

drier than the modeled conditions based on the historic stream flow record (DEIS at page 2.14). However, the Draft EIS does recognize that it is possible that the frequency of dry years will increase due to climate change and possibly reduce the ability of Reclamation to manage the system to move sediment and improve habitat. Recent analysis completed by the U.S. Geological Survey on the response of the Colorado River Basin to climate warming, including the record of deeper prolonged droughts provided by tree ring reconstruction, however, point to an additional and increased likelihood of additional drought conditions rather than wetter and cooler conditions.[3] In part, their analysis was based on observed long term trends of increasing temperatures over the last several decades. Projected future surface temperatures associated with business as usual emission scenarios were provided by the Intergovernmental Panel of Climate Change which predicts increasing temperatures this century in western North America. McCabe and Wolock considered flow reductions based on either an increase of less than 1 degree C or 2 degrees C by 2100. Their work showed that either warming condition could substantially reduce Colorado River Basin flow.

The Draft EIS states that the frequency of dry and moderately dry years may increase, reducing the ability of the rivers to move sediment and maintain or improve habitat conditions (Draft EIS at page 2.14). The current analyses do not appropriately incorporate the potential risks associated with climate change, including increased jeopardy for endangered fish species following a lack of habitat maintenance. EPA suggests that Reclamation revise its analysis of meeting needed fish flow provisions based on changed future conditions due to climate warming as appropriate to address the risk and consequences of future flow reductions. EPA requests that Reclamation 1) expand the hydrologic modeling to incorporate projections of future inflows, instead of solely relying upon the 31-year historic record, and 2) assess the uncertainty associated with climate change by analyzing conservative climate change scenarios, such as a 10% and 20% reduced future yield.

Considering additional information on flood flow restrictions

The Draft EIS states that the Corps of Engineers flood management objective is to keep flows below 15,000 cfs in the Gunnison River near Delta, Colorado. This is based on the combined flows as measured at the confluence of the Gunnison and Uncompahgre Rivers. (See Draft EIS at page 2-14.) The Draft EIS notes that Delta has recently made improvements to its wastewater treatment plant (DEIS, page 3-22). However, these upgrades are meant to protect the facility against a 100-year flood of over 33,000 cfs. EPA suggests that these flood flow restrictions be reconsidered in light of the experience of no structural damage at the 12,000 cfs flow event and then reconsider whether the Corps' flood management objective could be altered to reflect the improvements provided at the wastewater treatment plant in Delta.

[3] McCabe, Greg J. and Dave Wolock, (2007) Warming may create substantial water supply shortages in the Colorado River basin, *Geophysical Research Letters.*, Vol. 34, L22708, doi:10.1029/2007GL031764.

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.